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FURTHER NOTES ON THE FRUIT-EATING HABITS OF
THE SAGE THRASHER IN THE YAKIMA
VALLEY, WASHINGTON.

BY CLARENCE HAMILTON KENNEDY.

IN 'The Auk' for April, 1911, I reported the extensive damage done by Sage Thrashers (*Oreoscoptes montanus*) in the vineyard on this ranch. My observations and efforts to lessen the damage done were continued through the past season and are of interest.

While occasional Thrashers were seen on the ranch during the spring and early summer months, they did not appear this season in numbers until the middle of August when the Campbell's early grapes were ripening. For some reason they did not come early enough this season to eat the blackberries and raspberries. However, when they did come in August they were as numerous as at any time during the previous year.

Anticipating the damage they might do, I combated them in two ways.

First, the summer pruning to remove the extra foliage was omitted on those varieties, which had suffered the most damage the year previous, for I had noticed, that more damage had been done on the exposed bunches, than on those which were hidden by the foliage. While the Thrashers attempted to do as much damage as in the previous season, this extra foliage effectually protected nearly all of the bunches, and concentrated the damage on the few that were exposed. It was cheaper to sacrifice these altogether to the Thrashers, than to trim a few damaged berries from each of many clusters. The serious fault of this measure was that it delayed the ripening about ten days, which reduced the value of the crop. This method saved the Campbell's Early, which is the first variety to ripen, but it failed to save the Tokays and other *Vitis vinifera* varieties, which began ripening three weeks after the Campbell's Early.

To save these I began the second method, namely killing the Sage Thrashers with a shotgun. The year previous I had tried shooting a few to see if they could be frightened away but failed to intimidate them. They are apparently not quick or intelligent birds.

This year I shot to exterminate those in the vineyard and I must say that I was surprised at the quick results. The following table shows the rapidity with which they were destroyed.

Sept. 7, 1911 — 14 killed	Sept. 11 — 1 killed
Sept. 8 — 4 killed	Sept. 12 — 1 killed
Sept. 9 — 2 killed	Sept. 13 — 2 killed
Sept. 10 — 1 killed	Sept. 14 — 1 killed

After Sept. 14 no more were seen. During the first day's shooting they were easily approached but after that the few remaining birds were very wary. These on being disturbed would fly up on posts and then, seeing the gunner approach would dive into the grape foliage and escape by running on the ground, or by short flights from vine to vine close to the ground. The small number killed and the speedy and complete disappearance of the species seemed to indicate that they are very local in their individual ranges, and that these were living altogether in the vineyard during their depredations.

While the Thrashers are silent birds at this season, I did hear two short songs and one whispered song, also a cluck was given sometimes, when they were startled.

The following table gives the contents of stomachs examined:—

<i>Fruit in stomach</i>	<i>Insects in stomach.</i>
1 None	None.
2 Green grape, red grape.	Locust, several ants.
3 Black grape.	Small ground beetle, 3 white gravel.
4 2 black grapes.	Locust, numerous ant remains.
5 Black grape.	
6 2 black grapes	
7 Green grape, red grape	Locust, 6 ants.
8 Black grape	Locust, small wasp, small beetle.
9 Black grape.	Three black ants, minute beetle.
10 Black grape	Beetle, wasp.
11 Black grape	4 ground beetles.
12	Large ground beetle.

The omission of summer pruning is not a satisfactory method of saving the Campbell's Early grapes as the later ripening involves a loss of about 30% in value, as during this ten days delay the grapes drop in market price from three cents a pound to two cents. Therefore, if the Thrashers have to be killed before the

season is over, because of their molesting the later varieties it would seem quite as justifiable to shoot them early enough to save the Campbell's Early grapes also. It seems a pity to be compelled to kill such wonderful singers as Sage Thrashers, birds, which, were it not for their grape eating habits, would undoubtedly be very beneficial, but no better method occurs to me and it is difficult to stand by and not try to save the grapes.

In the few isolated vineyards in this lower Yakima Valley the killing of the Thrashers, which infest them during the grape season would evidently save the grapes and, because the Thrashers do not fly about the valley in flocks, only the few which live in each vineyard would have to be destroyed. This would save the grapes, and would probably not appreciably effect the total number of Thrashers inhabiting the valley.

CERTAIN PHASES OF THE THEORY OF RECOGNITION MARKS.

BY W. L. MCATEE.

THE paper by Dr. John Treadwell Nichols on recognition marks in certain species of birds, published in the preceding number of 'The Auk'¹ was read at the Philadelphia meeting of the American Ornithologists' Union in November, 1911. The theory of recognition marks was then unfavorably commented upon by several speakers, of which the writer was one. He now wishes to put in print a series of questions, which must be satisfactorily answered by those who believe in the great importance of directive markings if they would persuade others to share this belief. A statement of the general theory² of recognition marks will be useful and to

¹ Vol. XXIX, No. 1, Jan., 1912, pp. 44-48.

² It should be noted that this theory covers both "banner marks and "sight clues." H. C. Tracy in 1910 (Univ. of Calif. Publ. in Zoology. Vol. 6. No. 13, Dec. 28, 1910) separated these classes of markings, discrediting the crude interpretation of the former, but claiming utility for the latter.